

t77\_qc\_lang2  
(TMLdG9VYSfP7MAjU1cc2mRS53gMjx2haXrj)

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Let  $m1\_qc\_lang1 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k9\_qc\_lang1 : \iota \Rightarrow \iota$  be given. Let  $v4\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r3\_qc\_lang2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k19\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k20\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_qc\_lang2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} \forall X0.(m1\_qc\_lang1 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k9\_qc\_lang1 \\ X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (k9\_qc\_lang1 X0)) \Rightarrow ((r1\_qc\_lang2 \\ X0 X1 X2) \Rightarrow (r3\_qc\_lang2 X0 X1 X2)))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0.(m1\_qc\_lang1 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k9\_qc\_lang1 \\ X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (k9\_qc\_lang1 X0)) \Rightarrow ((v4\_qc\_lang1 \\ X1 X0) \Rightarrow ((r1\_qc\_lang2 X0 X2 X1) \Leftrightarrow ((X2 = k19\_qc\_lang1 X0 X1) \vee (X2 = k20\_qc\_lang1 \\ X0 X1)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.((m1\_qc\_lang1 X0) \wedge (m1\_subset\_1 X1 (k9\_qc\_lang1 X0))) \Rightarrow (m1\_subset\_1 (k20\_qc\_lang1 X0 X1) (k9\_qc\_lang1 X0)) \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.((m1\_qc\_lang1 X0) \wedge (m1\_subset\_1 X1 (k9\_qc\_lang1 X0))) \Rightarrow (m1\_subset\_1 (k19\_qc\_lang1 X0 X1) (k9\_qc\_lang1 X0)) \quad (4)$$

**Theorem 1**

$$\begin{aligned} \forall X0.(m1\_qc\_lang1 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k9\_qc\_lang1 \\ X0)) \Rightarrow ((v4\_qc\_lang1 X1 X0) \Rightarrow ((r3\_qc\_lang2 X0 (k19\_qc\_lang1 X0 X1) \\ X1) \wedge (r3\_qc\_lang2 X0 (k20\_qc\_lang1 X0 X1) X1)))) \end{aligned}$$